THAT WHICH IS CLAIMED:

1. A communications system for communicating with a plurality of terminals, the system comprising:

a network station;

a variable error correction encoder that error correction encodes respective bitstreams for respective ones of the plurality of terminals according to respective selected coding rates of a plurality of coding rates;

a variable symbol generator that maps respective ones of the error correction coded bitstreams to respective symbol streams according to respective signal constellations of a plurality of signal constellations of various orders;

a variable spreader that spreads the respective symbol streams according to respective orthogonal spreading codes of a plurality of mutually orthogonal spreading codes of various lengths;

a transmitter that transmits the spread symbol streams from the network station in a communications medium; and

a controller, operatively associated with the variable error correction encoder, the variable symbol generator and the variable spreader, that selects respective combinations of coding rate, signal constellation and spreading code applied to the respective bitstreams such that the spread symbol streams transmitted from the network station are spread according to mutually orthogonal spreading codes.

2. The system of Claim 1, wherein the controller selects the respective combinations of coding rate, signal constellation and spreading codes applied to the respective bitstreams such that each of the bitstreams is transmitted at an information transmission rate that is greater than or equal to a predetermined information transmission rate and with a signal transmission quality that meets a predetermined criterion.

3. The system of Claim 2, wherein the controller selects the respective combinations of coding rate, signal constellation and spreading code applied to the

respective bitstreams to maximize an information transmission rate for a selected terminal of the plurality of terminals.

4. The system of Claim 1, wherein the controller selects the respective combinations of coding rate, signal constellation and spreading code applied to the respective bitstreams such that power for transmitting the plurality of spread symbol streams from the network station is less than a maximum total transmit power.

5. The system of Claim 3, wherein the controller controls respective power levels at which the spread symbol streams are transmitted.

6. The system of Claim 5, wherein the controller maximizes an information transmission rate for the selected terminal while maintaining a mean transmit power for the plurality of transmitted spread symbol streams at less than a maximum mean transmit power.

7. The system of Claim 3, wherein the selected terminal comprises a web browser.

8. The system according to Claim 1, wherein the variable error correction encoder comprises at least one of a convolutional encoder, a Trellis encoder, a serial concatenation of two encoders connected by an interleaver and a turbo encoder.

9. The system of Claim 1, wherein the plurality of signal constellations comprises at least one of a QPSK constellation, an offset QPSK constellation, an M-PSK constellation, and an M-QAM constellation, wherein M is greater than or equal to eight.

10. The system of Claim 1, wherein the plurality of orthogonal spreading codes comprises a plurality of Walsh-Hadamard codes.

11. The system of Claim 1, wherein the variable spreader spreads the respective symbol streams according to respective combinations of an orthogonal spreading code of the plurality of orthogonal spreading code and a common scrambling code that is applied to each of the symbol streams.

12. The system of Claim 11, wherein the plurality of orthogonal spreading codes comprises a plurality of Walsh-Hadamard codes.

13. The system of Claim 11, wherein the common scrambling code comprises a sequence of QPSK symbols.

14. The system of Claim 11, wherein respective ones of the combinations of orthogonal spreading code and the common scrambling code are respective multiplicative combinations, and wherein the variable spreader complex multiplies respective ones of the symbol streams by the respective multiplicative combinations such that one of four phase changes in steps of ninety degrees is provided for each symbol repeat produced.

15. The system of Claim 1, wherein the variable spreader spreads respective ones of the symbol streams according to respective combinations of a Fourier code and a common scrambling code that is applied to each of the symbol streams, wherein the Fourier codes applied to the symbol streams are mutually orthogonal.

16. A communications system, comprising:

an error correction encoder that error correction encodes a bitstream according to an error correction code;

a variable symbol generator that generates a symbol from a group of bits of the error correction encoded bitstream according to a selected one of the plurality of selectable signal constellations;

a spreader that spreads the symbol according to a spreading code; and

a transmitter that transmits the spread symbol in a communications medium.

17. The communications system of Claim 16, wherein the plurality of selectable signal constellations includes at least two signal constellations of different order.

18. The communications system of Claim 16, further comprising a controller, operatively associated with the variable symbol generator, that selects the signal constellation to provide a desired information transmission rate for the bitstream.

19. The communications system of Claim 18, wherein the controller selects the signal constellation used by the variable symbol generator based on signal transmission quality.

20. A communication station according to Claim 16, wherein the error correction encoder comprises a variable error correction encoder that encodes the bitstream according to a selected error correction code of a plurality of selectable error correction codes.

21. The communications system of Claim 20, further comprising a controller, operatively associated with the variable error correction encoder and the variable symbol generator and the variable spreader, that selects the error correction code used by the variable error correction encoder and the signal constellation used by the variable symbol generator to provide a desired information transmission rate for the bitstream.

22. The communications system of Claim 21, wherein the controller selects the error correction code used by the error correction encoder and the signal

constellation used by the variable symbol generator based on signal transmission quality.

23. The communications system of Claim 16:

wherein the error correction encoder comprises a variable error correction encoder that encodes the bitstream according to a selected error correction code of a plurality of selectable error correction codes; and

wherein the spreader comprises a variable spreader that spreads the symbol according to a selected spreading code of a plurality of selectable orthogonal spreading codes including at least two spreading codes of different lengths.

24. The communications system of Claim 23, further comprising a controller, operatively associated with the variable error correction encoder, the variable symbol generator and the variable spreader, that selects the error correction code used by the variable error correction encoder, the signal constellation used by the variable symbol generator, and the spreading code used by the variable spreader to provide a desired information transmission rate for the bitstream.

25. The communications system of Claim 24, wherein the controller selects the error correction code used by the error correction encoder, the signal constellation used by the variable symbol generator, and the spreading code used by the variable spreader based on signal transmission quality.

26. The communications system of Claim 25, wherein the controller selects the error correction encoding rate used by the variable error correction encoder, the signal constellation used by the variable symbol generator and the spreading code used by the variable spreader such that an information transmission rate for the bitstream is greater than a predetermined information transmission rate and a signal transmission quality for the bitstream meets a predetermined criterion.

27. The communications system of Claim 24:

wherein the bitstream comprises a plurality of bitstreams;

wherein the variable error detection encoder error correction encodes respective ones of the plurality of bitstreams according to respective selected error correction codes of the plurality of selectable error correction codes;

wherein the variable symbol generator produces respective symbol streams from respective ones of the error correction encoded bitstreams according to respective selected signal constellations of the plurality of selectable signal constellations;

wherein the variable spreader spreads respective ones of the symbol streams according to respective selected spreading codes of the plurality of selectable spreading codes; and

wherein the controller selects respective combinations of error correction code, signal constellation and spreading code applied to the respective bitstreams of the plurality of bitstreams such that an information transmission rate for a first bitstream exceeds a first minimum required information transmission rate associated with the first bitstream while an information transmission rate for a second bitstream is maintained at or above a second minimum required information transmission rate associated with the second bitstream.

28. The communications system of Claim 27, wherein the controller selects respective combinations of error correction code, signal constellation and spreading code applied to the respective bitstreams of the plurality of bitstreams such that the information transmission rate for the first bitstream is maximized.

29. The communications system of Claim 28, wherein the controller controls respective power levels at which respective ones of the plurality of bitstreams are transmitted.

30. The communications system of Claim 29, wherein the controller selects respective combinations of error correction code, signal constellation and spreading code applied to the respective bitstreams of the plurality of bitstreams such that the information transmission rate for the first bitstream is maximized while maintaining a desired transmit power level for the plurality of bitstreams.

31. The communications system of Claim 24:

wherein the bitstream comprises a plurality of bitstreams;

wherein the variable error detection encoder error correction encodes respective ones of the plurality of bitstreams according to respective selected error correction codes of the plurality of selectable error correction codes;

wherein the variable symbol generator produces respective symbol streams from respective ones of the error correction encoded bitstreams according to a respective selected signal constellation of the plurality of selectable signal constellations;

wherein the variable spreader spreads respective ones of the symbol streams according to respective combinations of an orthogonal spreading code of a set of orthogonal spreading codes and a common scrambling code; and

wherein the controller selects respective combinations of error correction encoding rate, the signal constellation and orthogonal spreading code applied to the respective bitstreams of the plurality of bitstreams.

32. The communications system of Claim 31, wherein the set of orthogonal spreading codes comprises a set of Walsh-Hadamard codes.

33. The communications system of Claim 31, wherein the set of orthogonal spreading codes comprises a set of Fourier codes.

34. The communications system of Claim 16, wherein the variable symbol generator produces respective symbols from the selected signal constellation from

respective groups of bits of the encoded bitstream such that a first bit position of the successive groups of bits correlates to clusters of signal plane constellation points of the selected signal constellation and a second bit position of the successive groups correlates to relative positions within the clusters of constellation points.

35. The communications system of Claim 34, further comprising means for determining respective first and second desired power levels for respective first and second recipients of information in respective ones of the first and second bit positions, and wherein the variable symbol generator controls spacing of the clusters of constellation points in the signal plane based on the determined first and second desired power levels.

36. The communications system of Claim 34, further comprising:

means for determining respective first and second desired power levels for respective first and second recipients; and

means for assigning respective ones of the first and second bit positions to respective ones of the first and second recipients based on the determined first and second desired power levels.

37. The communications system of Claim 16, wherein the spreader comprises a multiplier that receives the symbol from the variable symbol generator and multiplies the received symbol by the spreading code to produce the spread symbol.

38. The communications system of Claim 37, wherein the spreader further comprises a second multiplier that multiplies an orthogonal spreading code by a scrambling code to produce the spreading code.

39. The communications system of Claim 16, wherein the spreader comprises:

an orthogonal spreader that receives the symbol from the variable spreader and orthogonally spreads the received symbol according to a spreading code selected from a set of orthogonal spreading codes; and

a scrambler that receives the orthogonally spread symbol and scrambles the orthogonally spread symbol according to a scrambling code to produce the spread symbol.

40. The communications system of Claim 16:

wherein the spreader comprises an orthogonal spreader that orthogonally spreads the error correction encoded bitstream according to a spreading code selected from a set of orthogonal spreading codes;

wherein the variable symbol generator produces the symbol from the selected constellation from a group of bits of the orthogonally-spread error correction encoded bitstream; and

wherein the spreader further comprises a scrambler that receives the symbol produced by the variable symbol generator and scrambles the received symbol according to a scrambling code to produce the spread symbol.

41. The communications system of Claim 16:

wherein the spreader comprises an orthogonal spreader that orthogonally spreads the error –correction encoded bitstream according to a selected orthogonal spreading code of a set of orthogonal spreading codes; and

wherein the plurality of selectable constellations includes at least one constellation that maps complementary bit patterns to diametrically opposite constellation points in a complex plane.

42. The communications system of Claim 41, wherein the spreader modulo-2 adds successive bits of the orthogonal spreading code to successive groups of bits of the error correction encoded bitstream.

43. The communications system of Claim 16, wherein the variable error correction encoder comprises at least one of a convolutional encoder, a Trellis encoder, a turbo encoder, and a serial concatenation of a first error correction encoder, an interleaver and a second error correction encoder.

44. The communications system of Claim 16, wherein the plurality of selectable signal constellations comprises at least one of a QPSK constellation, an 8-PSK constellation, an M-ary PSK constellation, and a M-ary QAM constellation.

45. A communications system, comprising:

an error correction encoder that encodes a bitstream according to an error correction code;

a symbol generator that generates respective symbols according to a signal constellation from respective groups of bits of the encoded bitstream such that a first bit position of the groups of bits correlates to clusters of signal plane constellation points of the signal constellation and a second bit position of the groups of bits correlates to relative positions within the clusters of constellation points;

a spreader that spreads the symbols produced by the symbol generator; and

a transmitter that transmits the spread symbols in a communications medium.

46. The communications system of Claim 45, further comprising means for determining respective first and second desired power levels for respective first and second recipients of information in respective ones of the first and second bit positions, and wherein the symbol generator controls spacing of the clusters of constellation points in the signal plane based on the determined first and second desired power levels.

47. The communications system of Claim 45, further comprising:

means for determining respective first and second desired power levels for respective first and second recipients; and

means for assigning respective ones of the first and second bit positions to respective ones of the first and second recipients based on the determined first and second desired power levels.

48. A receiving station, comprising:

a receiver that receives a communications signal from a communications medium;

a despreader that despreads the received signal according to a spreading code;

a symbol estimator that generates a symbol estimate from the despread signal; and

a variable decoder that decodes the symbol estimate according to a selected combination of an error correction code and a signal constellation of the plurality of selectable signal constellations.

49. The receiving station of Claim 48, wherein the plurality of selectable signal constellations comprises at least two signal constellations of different orders.

50. The receiving station of Claim 49, wherein the variable decoder decodes the symbol estimate according to a selected error correction code of a plurality of error correction codes including at least two error correction codes of different rates.

51. The receiving station of Claim 48, wherein the despreader comprises a variable despreader that despreads the received signal according to a selected spreading code of a plurality of selectable spreading codes including at least two spreading codes of different lengths.

52. The receiving station of Claim 48, wherein the variable decoder comprises at least one of a Trellis decoder, a Viterbi decoder, and a turbo decoder.

53. The receiving station of Claim 48, wherein the symbol estimator comprises a RAKE combiner.

54. The receiving station of Claim 48, wherein the despreader comprises a complex multiplier.

55. A method of communicating a bitstream, comprising:

modulo-2 adding each bit of a binary spreading code of length N in turn to a first group of bits of the bitstream to generate a revised first group of bits;

generating a first symbol from the revised first group of bits using a signal constellation that maps the first group of bits and a complement of the first group of bits to diametrically opposite constellation points; and

transmitting the first symbol in a communications medium.

56. The method of Claim 55, wherein the bitstream includes a second group of bits, and further comprising:

translating the second group of bits to the first group of bits;

modulo-2 adding each bit of a binary spreading code of length N in turn to the translated second group of bits to generate a revised translated second group of bits;

generating a second symbol from the revised translated second group of bits using the signal constellation that maps the first group of bits and a complement of the first group of bits to diametrically opposite constellation points; and

transmitting the second symbol in the communications medium.

57. The method of Claim 56, wherein translating the second group of bits to the first group of bits comprises translating the second group of bits to the first group of bits by cross-reference to a look-up table.

58. The method of Claim 55:

wherein transmitting the first symbol in a communications medium is preceded by scrambling the first symbol according to a scrambling code; and

wherein transmitting the first symbol in a communications medium comprises transmitting the scrambled first symbol in the communications medium.

59. The method of Claim 58, wherein the scrambling code comprises a complex sequence.

60. The method of Claim 59, wherein the complex sequence comprises binary-valued real and imaginary components.

61. The method according to Claim 58, wherein scrambling the first symbol according to a scrambling code comprises multiplying the first symbol by a scrambling sequence value.

62. A method of applying spreading codes to a signal using multi-bit complex symbols of a complex signal constellation, the constellation including at least one sub-group of constellation points that are equally-spaced in angle over 360 degrees by a given angular increment, the method comprising:

selecting a sequence of N phase rotation values from a set of phase rotations substantially equally spaced over 360 degrees by the angular increment to form a phase-rotational spreading code;

generating groups of bits for transmission to be represented by the multi-bit complex symbols using a bit-to-symbol mapping in which no sub-group of bits forming a symbol has an arithmetic value indicative of the angular position of the symbol;

translating respective ones of the generated groups of bits to respective bit patterns using a one-to-one mapping such that given sub-groups of bits in the bit patterns have an arithmetic value indicative of the angular position of the symbol; and

modifying the given subgroups in the bit patterns using each of the sequence of N phase rotation values to form, for each bit pattern, N rotated symbols.

63. The method of Claim 62, wherein the signal constellation comprises a 16-QAM constellation in which the at least one sub-group of equally spaced constellation points comprises four subgroups angularly spaced at 90 degree intervals.

64. The method of Claim 62, wherein the one-to-one mapping comprises a lookup table.

65. In a CDMA communications system employing orthogonal spreading codes, a method of controlling use of the orthogonal spreading codes, comprising:

selecting a group of recipients to share one of the orthogonal spreading codes;

representing respective groups of sequential bits for respective ones of the group of recipients by respective multi-bit symbols of a signal constellation;

repeating a respective one of the multi-bit symbols using the corresponding group of bits a respective number of times associated with the respective recipient; and

scrambling the repeated multi-bit symbols according to an orthogonal spreading code selected from a set of orthogonal spreading codes.

66. The method of Claim 65, wherein the numbers of times each group of bits is used to form symbols for each of the group of recipients is the same.

67. A method of communicating, comprising:

error correction encoding respective ones of a plurality of bitstreams according to respective error correction codes;

generating respective symbol streams from respective ones of the respective encoded bitstreams according to respective signal constellations of a plurality of

signal constellations, wherein the plurality of signal constellations comprises at least two signal constellations of different order;

spreading respective ones of the symbol streams according to respective spreading codes; and

transmitting the spread symbol streams in a communications medium.

68. The method of Claim 67, further comprising selecting a signal constellation for application to a bitstream of the plurality of bitstreams to provide a desired information transmission rate for the bitstream.

69. The method of Claim 67, further comprising selecting a signal constellation applied to a bitstream based on signal transmission quality.

70. The method of Claim 67, wherein the plurality of error correction codes includes at least two codes of different rates.

71. The method of Claim 70, further comprising selecting the error correction codes and signal constellation applied to a bitstream to provide a desired information transmission rate for the bitstream..

72. The method of Claim 71, further comprising selecting the error correction code and the signal constellation applied to a bitstream based on signal transmission quality.

73. The method of Claim 67, wherein the plurality of spreading codes comprises a plurality of spreading codes including at least two spreading codes of different lengths.

74. The method of Claim 73, further comprising selecting the error correction code, signal constellation and the spreading code applied to a bitstream to provide a desired information transmission rate for the bitstream.

75. The method of Claim 73, further comprising selecting the error correction code, signal constellation and spreading code applied to a bitstream based on signal transmission quality.

76. The method of Claim 73, further comprising selecting the error correction encoding rate, signal constellation and spreading code applied to a bitstream such that an information transmission rate for the bitstream is greater than a predetermined information transmission rate and a signal transmission quality for the bitstream meets a predetermined criterion.

77. The method of Claim 73, further comprising selecting respective combinations of error correction code, signal constellation and spreading code applied to the respective bitstreams of the plurality of bitstreams such that the information transmission rate for a bitstream is maximized.

78. The method of Claim 77, further comprising controlling respective power levels at which respective ones of the plurality of bitstreams are transmitted.

79. The method of Claim 78, further comprising selecting respective combinations of error correction code, signal constellation and spreading code applied to the respective bitstreams of the plurality of bitstreams such that the information transmission rate for a first bitstream is maximized while maintaining a desired transmit power level for the plurality of bitstreams.

80. The method of Claim 67, wherein spreading respective ones of the symbol streams according to respective spreading codes comprises spreading

respective ones of the symbol streams according to respective combinations of an orthogonal spreading code of a set of orthogonal spreading codes and a common scrambling code.

81. The method of Claim 80, wherein the set of orthogonal spreading codes comprises a set of Walsh-Hadamard codes.

82. The method of Claim 81, wherein the set of orthogonal spreading codes comprises a set of Fourier codes.

83. A method according to Claim 67, wherein generating respective symbol streams from respective ones of the respective encoded bitstreams according to respective signal constellations of a plurality of signal constellations comprises producing respective symbols from a signal constellation from respective groups of bits of an encoded bitstream such that a first bit position of the successive groups of bits correlates to clusters of signal plane constellation points of the selected signal constellation and a second bit position of the successive groups correlates to relative positions within the clusters of constellation points.

84. The method of Claim 83, further comprising:

determining respective first and second desired power levels for respective first and second recipients of information in respective ones of the first and second bit positions; and

controlling spacing of the clusters of constellation points in the signal plane based on the determined first and second desired power levels.

85. The method of Claim 83, further comprising:

determining respective first and second desired power levels for respective first and second recipients; and

assigning respective ones of the first and second bit positions to respective ones of the first and second recipients based on the determined first and second desired power levels.

86. The method of Claim 67:

wherein spreading respective ones of the symbol streams according to respective spreading codes comprises orthogonally spreading an error –correction encoded bitstream according to an orthogonal spreading code of a set of orthogonal spreading codes; and

wherein generating respective symbol streams from respective ones of the respective encoded bitstreams according to respective signal constellations of a plurality of signal constellations comprises generating a symbol stream from the orthogonally spread error correction encoded bitstream according to a signal constellation that maps complementary bit patterns to diametrically opposite constellation points in a complex plane.

87. The method of Claim 86, wherein spreading respective ones of the symbol streams according to respective spreading codes comprises modulo-2 adding successive bits of the orthogonal spreading code to successive groups of bits of the error correction encoded bitstream.

88. The method of Claim 67, wherein the plurality of error correction codes comprise at least one of a convolutional code, a Trellis code, a turbo code, and a serial concatenation of a first error correction code, interleaving and a second error correction code.

89. The method of Claim 67, wherein the plurality of signal constellations comprises at least one of a QPSK constellation, an 8-PSK constellation, an M-ary PSK constellation, and a M-ary QAM constellation.

90. A method of communicating a bitstream, comprising:

error correction encoding the bitstream according to an error correction code;

generating respective symbols according to a signal constellation from respective groups of bits of the encoded bitstream such that a first bit position of the groups of bits correlate to clusters of constellation points of the signal constellation and a second bit position of the groups of bits correlate to relative positions within the clusters of constellation points;

spreading the generated symbols; and

transmitting the spread symbols in a communications medium.

91. The method of Claim 90, further comprising:

determining respective first and second desired power levels for respective first and second recipients of information in respective ones of the first and second bit positions; and

controlling spacing of the clusters of constellation points in the signal plane based on the determined first and second desired power levels.

92. The method of Claim 90, further comprising:

determining respective first and second desired power levels for respective first and second recipients; and

assigning respective ones of the first and second bit positions to respective ones of the first and second recipients based on the determined first and second desired power levels.

93. A method of processing received signals, comprising:

despreading first and second received signals according to respective first and second spreading codes;

generating respective first and second symbol estimates from the respective first and second despread first and second received signals;

decoding the first symbol estimate according to a combination of a first error correction code and a first signal constellation; and

decoding the second symbol estimate according to a second combination of a second error correction code and a second signal constellation.

94. The method of Claim 93, wherein the first and second signal constellations are of different orders.

95. The method of Claim 94, wherein the first and second error correction codes have different rates.

96. The method of Claim 93, wherein the first and second spreading codes have different lengths